Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-17. (canceled)

18.(currently amended)) A communication network comprising at least three nodes interconnected by at least two distinct communication links and control means for ~~contolling~~controlling operation of each node, wherein:

each of said communication links has at least two electrical conductors;

each of said communication links connects two of said nodes and is operative to communicate in a half-duplex mode;

at least one of said nodes is couplable to a payload;

at least a first one of said nodes has first and second line couplers and signal transfer means controlled by said control means for controlling transfer of data to and from each of said line couplers;

each of said line couplers is coupled to another one of said nodes by a respective one of said communication links; and

said control means are operative for controlling said signal transfer means of at least said first one of said nodes to establish a selected one of a plurality of operating modes, including: ~~a data generating mode in which data is generated in said first one of said nodes and transferred to only a selected one of said line couplers; and a repeating mode in which only data received at one of said line couplers is repeated without format change to the other one of said line~~

~~couplers~~ a first repeating mode that allows data to be repeated only in a direction from said first line coupler to said second line coupler; and a second repeating mode that allows data to be repeated only from said second line coupler to said first line coupler.

19. (previously presented) The network as in claim 18, wherein another one of said operating modes is a receiving mode wherein said first one of said nodes receives data in one or more communication links.

20.(previously presented) The network as in claim 18 wherein said nodes are interconnected by said links to cause said network to have a linear topology.

21.(previously presented) The network as in claim 18, wherein said nodes are interconnected by said links to cause said network to have a circular topology.

22.(previously presented) The network as in claim 18, further comprising at least one source of electrical power distributed to said nodes via said communication links.

23.(previously presented) The network as in claim 22, wherein said electrical conductors are operative for distributing both electrical power from said source and the data communication signals.

24.(canceled)

25.(currently amended) The network as in claim 18, wherein said ~~contol~~control means is operative for selecting the

operating mode of said first one of said nodes via signals transported by the network.

26.(currently amended) The network as in claim 18, wherein at least two of said nodes are sequentially selected to operate in ~~the~~a data generating mode in which data is generated in each of said at least two nodes in sequence and is transferred to only a selected one of said line couplers in each respective node.

27.(canceled)

28.(currently amended) The network as in claim 18, wherein signal transfer means of at least said first one of said nodes comprises, for repeating data received via one communication link, a repeater connected between said first and second line couplers, said repeater being controllable to repeat data in a selected direction between said first and second line couplers.

29.(currently amended) A node for distributing data communication, sensing, and control signals in a local area network, the node comprising:

a first line coupler connectable to a first communication link;

a second line coupler connectable to a second communication link;

a power supply having a source of electrical power; and

a control, logic, and processing unit,

wherein said node is mode switchable under control of said control, logic, and processing unit into a first state that allows data to be repeated without format change only in a

direction from said first link to said second link, and a second state that allows data to be repeated without format change only from said second link to said first link.

30. (previously presented) The node as in claim 29, further comprising at least one receiver connected to one of said communication links operative to receive data therefrom.

31. (previously presented) The node as in claim 29, wherein said node is operative in a mode in which data is transmitted to at least one of said communication links.

32. (previously presented) The node as in claim 29, further comprising at least one payload interface.

33.(previously presented) The node as in claim 32, further comprising a device selected from a group consisting of sensors, actuators, and data terminal equipment connected to said payload interface.

34. (new) The network as in claim 18, wherein each of said communication links connects only two of said nodes and consists of only a pair of conductors.

35. (new) The network as in claim 29, wherein each of said line couplers is connected, outside of said node, only to a respective one of said communication links and each of said communication links consists of only a pair of conductors.